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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,489	08/31/2000	Youqi Wang	SMX 3083.1	3644

321 7590 08/25/2003

SENNIGER POWERS LEAVITT AND ROEDEL
ONE METROPOLITAN SQUARE
16TH FLOOR
ST LOUIS, MO 63102

EXAMINER

QUAN, ELIZABETH S

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 08/25/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/652,489

Applicant(s)

WANG ET AL.

Examiner

Elizabeth Quan

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12,14-18,24-51 and 53-63 is/are pending in the application.
- 4a) Of the above claim(s) 18,30,37 and 42-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12,15,17,24,29,31-36,38,41,50,51 and 53-63 is/are rejected.
- 7) ☐ Claim(s) 14,16,25-28,39 and 40 is/are objected to.
- 8) ☒ Claim(s) 12,14-18,24-51 and 53-63 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 19,20.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because heater (156) appears to be outside the probe in FIG. 3 of the immediate application when claims 58-63 recites that the heater is inside the probe. The specification also indicates that the heater is attached to the outer body of the probe. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 31, 53, 54, 58-63 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Heater (156) appears to be outside the probe in FIG. 3 of the immediate application when claims 58-63 recites that the heater is inside the probe. The specification also indicates that the heater is attached to the outer body of the probe. Furthermore, none of the figures showing the interior of the probe show a heater. Referring to claim 31, neither the specification nor drawings support an outlet positioned at an exterior of the tip nor an opening separate from the sampling passage. Is the opening different than the recess? Referring to claims 53 and 54, there appears to be no support for a cover covering the inner body.

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 57 and 58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 57 recites the limitation "the body" in the second to the last line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 12, 15, 17, 24, 29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,705,616 to Andresen et al.

Referring to claims 12, 15, 17, 24, 29, Andresen et al. disclose a sampling probe (33) for delivering a reactant to a substance deposited on a substrate to form a reaction product and transporting the reaction product to a product analyzer for analysis. The preamble, which recites the probe **for delivering a reactant to a substance deposited on a substrate to form a reaction product and transporting the reaction product to a product analyzer**, has been construed as intended use (see MPEP 2111.02). A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus

teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the prior art sampling probe does not have to be for delivering a reactant to a substance deposited on a substrate to form a reaction product and transporting the reaction product to a product analyzer for analysis since the prior art sampling probe has all the recited structural limitations and is capable of performing the intended use.

The probe (33) has an inner body and an outer body with an inner cavity sized and shaped for receiving the inner body (see FIG. 6). The inner body has an upper portion fixed relative to the outer body (see FIG. 6). The probe (33) has a tip for engaging the substrate (see FIG. 6). Method limitations are accorded no patentable weight in apparatus claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the tip does not have to engage the substrate since the prior art sampling probe has all the recited structural limitations, including the tip, which is capable of performing the intended use of engaging with the substrate.

A resiliently compliant element as characterized by plug (57) and molecular screen (74) between washers (75) connects the tip to the inner body for permitting the tip to move relative to the inner body (see FIG. 6; COL. 11, lines 48-68; COL. 12, lines 1-4). The tip has a recess (55) sized and shaped for receiving at least a portion of the reaction product (see FIG. 6). A reactant delivery passage (36,37) extends through the probe to an

outlet at the tip for delivering reactant to the substance on the substrate to form the reaction product (see FIG. 6). Method limitations are accorded no patentable weight in apparatus claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the tip does not have to deliver reactant to the substance on the substrate to form the reaction product since the prior art sampling probe has all the recited structural limitations, including the reactant delivery passage, which is capable of performing the intended use. The reactant delivery passage (36,37) joins groove (58) and openings within the washers (75), which is an annular section defined by an exterior surface of the inner body and an interior surface of the outer body (see FIG. 6).

A reaction product sampling passage extends from the recess (55) in a direction upward from the recess (55) and adapted for connection to the product analyzer, the spectrometer, for transporting at least the portion of the reaction product to the product analyzer (see FIG. 6; COL. 12, lines 31-42).

Andresen et al. includes all the limitations in claims 12, 15, 17, 24, 29.

3. Claims 38, 41, 50-57 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,959,297 to Weinberg et al.

Referring to claims 38, 41, 50-57, Weinberg et al. disclose a sampling probe capable of delivering a reactant to a substance deposited on a substrate to form a reaction product and for transporting the reaction product to a product analyzer for analysis (see

FIGS. 8-10). The probe comprises an inner body and an outer body having an inner cavity sized and shaped for receiving the inner body (see FIGS. 8-10). The inner body includes a tip with a recess for engaging the substrate and receiving a portion of the reaction product (see FIGS. 8-10; COL. 15, lines 30-67). A reactant delivery passage (904,902) extends through the probe to an outlet at the tip for delivering reactant to the substance on the substrate to form the reaction product (see FIGS. 8-10; COL. 15, lines 30-67). Since reactants are delivered through two passages (904,902), the junction of the two passages (904,902) is the mixing chamber in which the reactants mingle. A product sampling passage (906) extends from the recess adapted for connection to the scanning mass spectrometer for transporting at least the portion of the reaction product to the scanning mass spectrometer (see FIGS. 8-10; COL. 15, lines 30-67). The tip has at least one opening provided by conduit (806) that is separate from the sampling passage (906) to permit reactants to flow from the exterior of the top into the recess when the tip contacts the substrate (see FIGS 8-10). The conduit (806) is separate from conduit (906) such that the passage within the conduit never meets the opening provided by the conduit (806) (see FIGS. 8-10). They are kept separate since the walls of the conduit (906) keep the passage of the conduit from the passage of conduit (806) (see FIGS. 8-10). An overflow vent or a vent passage (1004) extends through the outer body from an inlet (908) positioned outside the recess of the tip for removing reactant from an area outside the recess (see FIGS. 8-10; COL. 15, lines 30-67). A cover is mounted on the body covering the plug and forming an upper recess between the cover and lower end face of the plug, since reactants flow through the cover and plug from a reactant source (see

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FIGS. 8-10). There is a barrier surrounding the tip and disposed outside the annular recess to inhibit contamination of adjacent substances on the substrate (see FIGS. 9 and 10). Therefore, Weinberg et al. includes all the limitations in claims 38, 41, 50-57.

4. Claims 12, 17, 24, 29, 31, 32, 36, 51, 53, 59, 60 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,408,125 to Meuzelaar.

Referring to claims 12, 17, 24, 29, 31, 32, 36, 51, 53, 59, 60, Meuzelaar discloses a sampling probe (10) for delivering a reactant to a substance deposited on a substrate to form a reaction product and transporting the reaction product to a product analyzer for analysis. The preamble, which recites the probe **for delivering a reactant to a substance deposited on a substrate to form a reaction product and transporting the reaction product to a product analyzer**, has been construed as intended use (see MPEP 2111.02). A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the prior art sampling probe does not have to be for delivering a reactant to a substance deposited on a substrate to form a reaction product and transporting the reaction product to a product analyzer for analysis since the prior art sampling probe has all the recited structural limitations and is capable of performing the intended use.

The probe (10) has an inner body and an outer body with an inner cavity sized and shaped for receiving the inner body (see FIG. 2). The inner body has an upper portion fixed relative to the outer body (see FIG. 2). The probe (10) has a tip for engaging the

substrate (see FIG. 2). Method limitations are accorded no patentable weight in apparatus claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the tip does not have to engage the substrate since the prior art sampling probe has all the recited structural limitations, including the tip, which is capable of performing the intended use of engaging with the substrate.

A resiliently compliant element (50,92) connects the tip to the inner body for permitting the tip to move relative to the inner body (see FIG. 2). The tip has a recess sized and shaped for receiving at least a portion of the reaction product (see FIG. 2). A reactant delivery passage (80,82) extends through the probe to an outlet at the tip for delivering reactant to the substance on the substrate to form the reaction product (see FIG. 2). Method limitations are accorded no patentable weight in apparatus claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. An apparatus claim covers what a device is, not what a device does (see MPEP 2114). In this case the tip does not have to deliver reactant to the substance on the substrate to form the reaction product since the prior art sampling probe has all the recited structural limitations, including the reactant delivery passage, which is capable of performing the intended use.

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A reaction product sampling passage (80,82) extends from the recess in a direction upward from the recess and adapted for connection to the product analyzer, the spectrometer, for transporting at least the portion of the reaction product to the product analyzer (see FIG. 6; COL. 12, lines 31-42). A heater (94,96) is inside the probe for heating the reactant (see FIG. 2; COL. 6, lines 51-68; COL. 7, lines 1-32).

Meuzelaar includes all the limitations in claims 12, 17, 24, 29, 31, 32, 36, 51, 53, 59, 60.

5. Claims 31 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,607,094 to Beer.

Referring to claims 31 and 50, Beer discloses a sampling probe capable of delivering a reactant to a substance deposited on a substrate to form a reaction product and for transporting the reaction product to a product analyzer for analysis (see FIGURE; COL. 1, lines 56-63). The probe comprises an inner body and an outer body (11) having an inner cavity sized and shaped for receiving the inner body (see FIGURE). The inner body includes a tip with a recess for engaging the substrate and receiving a portion of the reaction product (see FIGURE; COL. 1, lines 56-63; COL. 2, lines 36-51). A reactant delivery passage (26) extends through the probe to an outlet (27) at the tip for delivering reactant to the substance on the substrate to form the reaction product (see FIGURE; COL. 2, lines 66-75). The reactant delivery passage (26) has an annular section defined by an exterior surface of the inner body and an interior surface of the outer body (see FIGURE). A product sampling passage (6) extends from the recess adapted for connection to the product analyzer for transporting at least the portion of the reaction

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product to the product analyzer (see FIGURE; COL. 2, lines 36-51). Therefore, Beer includes all the limitations in claims 31 and 50.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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9. Claims 58, 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,959,297 to Weinberg et al. or U.S. Patent No. 4,408,125 to Meuzelaar or U.S. Patent No. 3,607,094 to Beer in view of U.S. Patent No. 4,705,616 to Andresen et al.

Referring to claims 58, 61-63, Weinberg et al., Meuzelaar, and Beer do not explicitly disclose a heater inside the probe. Andresen et al. disclose a heater for pyrolysis of samples within the reaction chamber of the probe prior to analysis by a spectrometer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify each of Weinberg et al., Meuzelaar, and Beer to provide a heater inside the probe as in Andresen et al. as required to perform an assay for subsequent analysis.

Allowable Subject Matter

10. Claims 14, 16, 25-28, 33-35, 39, 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments with respect to claims 12, 14-17, 24-29, 31-36, 38-51, 53-63 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's arguments filed 6/12/2003 have been fully considered but they are not persuasive.

Applicants argue that Weinberg fails to show an overflow vent passage positioned in the body to remove excess reactant before the excess reactant reaches the outlet.

Examiner points out that there is an overflow vent passage (1004) extending through the

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outer body. Examiner also points out that the limitation of removing excess reactant before the excess reactant reaches the outlet is a method limitation, which is accorded no patentable weight in apparatus claims.

Applicants argue that Weinberg does not disclose a plurality of sources, mixing chamber, or a plurality of reactant source passages. Examiner maintains that each of the reach of the passages (902) and (904), which deliver reactant gases, constitute the plurality of reactant source passages. Since each passage is equipped with a source of reactant gases, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the passages (902) and (904) with a plurality or two sources of reactant gases. In the event one would argue that there is not a plurality of sources, it would have been obvious to provide a plurality of sources to perform assays requiring different reactants.

Attorney argues that Beer's tip is positioned above the tube, not in contact therewith, and Beer's tip does not having an opening separate from the sampling passage permitting reactants to flow into the recess when the tip contacts the substrate. A new interpretation has been made on prior art Beer. Changes to Beer's drawings have been made to show the new interpretation Examiner has applied in the new grounds of rejection by Beer. Additionally, it does not matter if Beer's tip is not in contact with the tube; the claim merely recites adapted to contact. The tip does not have to be in contact, but it should have the ability to do so.

Conclusion

13. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 6/12/2003 and 7/11/2003 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (703) 305-1947. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703) 308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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Elizabeth Quan
Examiner
Art Unit 1743

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Maureen M. Wallenhorst
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PRIMARY EXAMINER
GROUP ~~180~~ 1700